

**PCT****INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000054204	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/014880	International filing date (<i>day/month/year</i>) 24 December 2003 (24.12.2003)	Priority date (<i>day/month/year</i>) 08 January 2003 (08.01.2003)
International Patent Classification (IPC) or national classification and IPC C12N 1/04, 9/96, 9/78, 9/88		
Applicant BASF AKTIENGESELLSCHAFT		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13 May 2004 (13.05.2004)	Date of completion of this report 25 May 2005 (25.05.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/014880

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages 1-23, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1-14, filed with the letter of 09 March 2005 (09.03.2005)
- ☒ the drawings:
pages 1/2-2/2, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages 1-3, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1, 5	YES
	Claims	2-4, 6-14	NO
Inventive step (IS)	Claims	1, 5	YES
	Claims	2-4, 6-14	NO
Industrial applicability (IA)	Claims	1-14	YES
	Claims		NO

2. Citations and explanations

1. The present application relates to a method for conserving/stabilising micro-organisms having nitrile hydratase or nitrilase enzyme activity. An aldehyde, preferably benzaldehyde (example 3) or 2-chlorobenzaldehyde (example 4), is used as a stabiliser.

2. D1: US-A-4 900 672 (YAMADA HIDEAKI ET AL) 13

February 1990 (1990-02-13)

D2: DE 198 48 129 A (BASF AG) 20 April 2000 (2000-04-20)

3. Novelty

3.1 D1 discloses a method for conserving the nitrile hydratase activity in *Pseudomonas*. Inter alia, glyoxalic acid or other acids with aldehyde groups are proposed as stabilisers (column 2, line 65 - column 3, line 42; claim 5). Nitriles and cyanide compounds are also proposed as stabilising additives (column 3, line 2 and line 17). The compounds can be used as stabilisers alone or in combination (column 2, line 68). The conserving effect of the glyoxalic acid is shown (table 3). The bacteria cells can be

present in suspension or immobilised.

Claims 2-4, 6-8, 13 and 14 are not novel over D1, since glyoxalic acid and other acids with aldehyde groups as disclosed in D1 (column 3, lines 28-29) are covered by the definition of claim 2

("substituted or unsubstituted (...) C1-C10 alkyl").

Claims 9-12 are not novel either since they relate to a preparation with nitrile hydratase.

3.2 Furthermore, claim 13 is not novel over D2 since the latter also proposes the addition of aldehydes to the reaction mixture, albeit not for the purpose of conserving the enzyme activity (page 5, lines 13-18; claim 12). The feature "storage until use as per step c)" is not suitable, however, for delimiting the subject matter of claim 13 over D2, since the term "storage" is unclear with respect to a time limit.

3.3 Claim 5 relates specifically to substituted or unsubstituted benzaldehydes which are not disclosed as stabilisers in any of the citations. The claim is therefore novel.

The conservation of the nitrilase activity was not disclosed in D1. Claim 1 can therefore be considered novel.

4. Inventive step

Since none of the citations proposes the use of benzaldehydes for stabilising enzymes contained in micro-organisms, claim 5 can be considered inventive.

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Although the use of aldehydes for stabilising nitrile hydratase is known (D1), it cannot be considered obvious that this conservation method can also be used on the nitrile enzyme activity. Claim 1 therefore meets the inventive step requirements of PCT Article 33(3).